

# Series AMEPR60-AZ

up to 5A | AC-DC / DC-DC | LED Driver / Converter



## FEATURES:

- AC-DC Constant Current or Constant Voltage LED Driver
- Input range 90-305VAC/47-440Hz
- High Efficiency up to 89%
- Operating temperature -40 to 85°C
- Dimmable via resistive / 0-10Vdc / PWM
- 5 Years Limited Warranty
- Over Temperature Protection
- Over Current Protection
- Waterproof Case rated IP68
- Power Factor Correction
- Short Circuit Protection



## Models Single output

| Model           | Output Voltage Range (V) <sup>③</sup> | Output Current (A) <sup>③</sup> | Input Voltage (VAC/Hz) | Input Voltage (VDC) | Mode of Operation             | OCP / OVP | Max Output Power (W) <sup>①</sup> | Efficiency (%) |
|-----------------|---------------------------------------|---------------------------------|------------------------|---------------------|-------------------------------|-----------|-----------------------------------|----------------|
| AMEPR60-50120AZ | 36-50                                 | 0 - 1.20                        | 90-305 / 47-440        | 130-430             | Constant Current              | 1.27      | 60                                | 89             |
|                 |                                       |                                 |                        |                     | Constant Voltage <sup>②</sup> | 50.7      | 63.8                              | 86             |
| AMEPR60-36170AZ | 24-36                                 | 0 - 1.70                        | 90-305 / 47-440        | 130-430             | Constant Current              | 1.77      | 59.8                              | 88             |
|                 |                                       |                                 |                        |                     | Constant Voltage <sup>②</sup> | 36.6      | 63.7                              | 86             |
| AMEPR60-24250AZ | 12-24                                 | 0 - 2.50                        | 90-305 / 47-440        | 130-430             | Constant Current              | 2.55      | 60                                | 87             |
|                 |                                       |                                 |                        |                     | Constant Voltage <sup>②</sup> | 24.5      | 61                                | 85             |
| AMEPR60-12500AZ | 5-12                                  | 0 - 5.0                         | 90-305 / 47-440        | 130-430             | Constant Current              | 5.2       | 60                                | 85             |
|                 |                                       |                                 |                        |                     | Constant Voltage <sup>②</sup> | 12.3      | 62                                | 82             |

<sup>①</sup> Exceeding the maximum output power will permanently damage the converter

<sup>②</sup> The dimming feature is not supported when units are used in Constant Voltage mode only.

<sup>③</sup> In constant current mode output current is maximum shown, in constant voltage mode output voltage is the maximum shown.

All models can be ordered with optional North American colour input wires (black (L), white (N), green (GND)). Add “-NA” to part number when ordering.

Note: Aimtec limited warranty of 5 years is valid based on product operation at datasheet specifications at ambient temperature of 25°C, humidity<75%, nominal input voltage (115/230/277VAC) and at rated output load unless otherwise specified. See

<http://www.aimtec.com/terms-sale>

AMEPR60-AZ's AC/DC LED drivers have electrical safeguards designed within to protect it from conventional electrical abnormalities with the levels listed in the safety table. Applications for use within rural agricultural, heavy industrial, and other areas or regions which are prone to 'dirty' electrical conditions which would subject any of the above models to excessive voltages surges or spikes, may damage or cause early life failure of product. In this case consideration should be made by the end user to ensure that adequate line or mains surge suppression is installed in front of Aimtec device to ensure the longevity of the products. Failure to identify excessive line surges violations prior to installation may damage sensitive equipment permanently.

## Input Specifications

| Parameters          | Conditions | Typical | Maximum   | Units |
|---------------------|------------|---------|-----------|-------|
| Inrush current <2ms | 115VAC     | 30      |           | A     |
|                     | 230VAC     | 50      |           |       |
| Leakage current     | 115VAC     | 0.5     |           | mA    |
|                     | 230VAC     | 0.7     |           |       |
| AC current          | 115VAC     | 0.73    |           | A     |
|                     | 230VAC     | 0.33    |           |       |
| Power Factor        | 115VAC     |         | 0.97      |       |
|                     | 230VAC     |         | 0.93      |       |
| External fuse       |            |         | 250V/1.5A |       |
| Start up time       |            | 250     |           | ms    |
| Surge voltage       | 2sec       |         | 440       | V     |

### Output Specifications

| Parameters                 | Conditions           | Typical | Maximum | Units  |
|----------------------------|----------------------|---------|---------|--------|
| Current accuracy (CC Mode) |                      | ±3      |         | %      |
| Voltage accuracy (CV Mode) |                      | ±3      |         | %      |
| Line regulation            | LL-HL                | ±1      |         | %      |
| Load regulation            | 0-100% load          | ±3      |         | %      |
| Ripple & Noise ④           | 20MHz Bandwidth      | 75      |         | mV p-p |
| Hold-up time               |                      | 90      |         | ms     |
| Current adjustment range⑤  |                      | 100-10  |         | %      |
| Minimum Load Voltage       | See the models table |         |         |        |

④ Tested with 0.1µF (C/C) or (M/C) and 47µF (E/C) parallel capacitors at the end.

⑤ Note: from 0% to 10% dimming adjustment signal instability may be present.

### Isolation Specifications

| Parameters            | Conditions  | Typical | Rated | Units |
|-----------------------|-------------|---------|-------|-------|
| Tested I/O voltage    | 3 sec/3.5mA |         | 3000  | VAC   |
| Isolation Resistance  | 500VDC      | >1000   |       | MΩ    |
| Isolation Capacitance |             | 1000    |       | pF    |

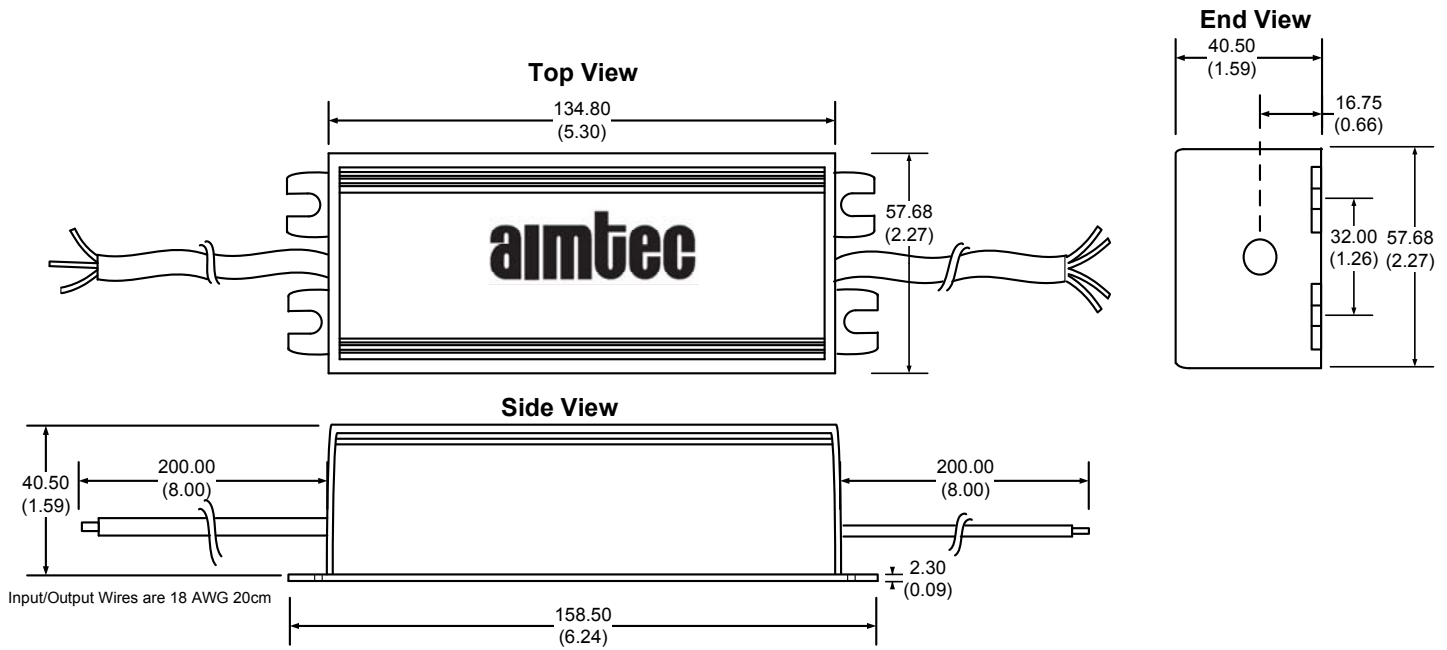
### General Specifications

| Parameters                  | Conditions                                                | Typical    | Maximum | Units  |
|-----------------------------|-----------------------------------------------------------|------------|---------|--------|
| Switching frequency         |                                                           | 130        |         | KHz    |
| Over current protection     | AMEPR60-50120AZ                                           |            | 1.27    | A      |
|                             | AMEPR60-36170AZ                                           |            | 1.77    |        |
|                             | AMEPR60-24250AZ                                           |            | 2.55    |        |
|                             | AMEPR60-12500AZ                                           |            | 5.2     |        |
| Over voltage protection     | Refer to Constant Current vs. Constant Voltage Mode curve |            |         |        |
| Short circuit protection    | Continuous                                                |            |         |        |
| Short circuit restart       | Auto recovery                                             |            |         |        |
| Over temperature protection | >105°C                                                    |            |         |        |
| Operating temperature       | With derating over 55°C                                   | -40 to +85 |         | °C     |
| Maximum case temperature    |                                                           |            | 100     | °C     |
| Storage temperature         |                                                           | -40 to +95 |         | °C     |
| Temperature coefficient     |                                                           | ±0.02      |         | % / °C |
| Cooling                     | Free air convection                                       |            |         |        |
| Humidity                    |                                                           |            | 95      | % RH   |
| Case material               | Plastic                                                   |            |         |        |
| Potting                     | Epoxy (IP67 rated)                                        |            |         |        |
| Wires                       | UL1015 18AWG *20CM                                        |            |         |        |
| Weight                      |                                                           | 530        |         | g      |
| Dimensions (L x W x H)      | 5.30 x 2.27 x 1.59 inches 134.80 x 57.68 x 40.50 mm       |            |         |        |
| MTBF                        | >400,000 hrs (MIL-HDBK-217F at +25°C)                     |            |         |        |

### Safety Specifications

| Parameters       |                                                                             |                               |
|------------------|-----------------------------------------------------------------------------|-------------------------------|
| Agency approvals | cULus, CE                                                                   |                               |
| Standards        | UL8750, UL60950-1, EN55022, class B, EN60529(IP68), EN61347-1, EN61347-2-13 |                               |
|                  | Information Technology Equipment                                            | EN55022 Class B               |
|                  | Harmonic Current Emissions                                                  | IEC/EN 61000-3-2, Class C     |
|                  | Voltage fluctuations and flicker                                            | IEC/EN 61000-3-3, (EN60555-3) |
|                  | Electrostatic Discharge Immunity                                            | IEC 61000-4-2 Level 3         |
|                  | RF, Electromagnetic Field Immunity                                          | IEC 61000-4-3 Level 2         |
|                  | Electrical Fast Transient / Burst Immunity                                  | IEC 61000-4-4 Level 2         |
|                  | Surge Immunity                                                              | IEC 61000-4-5 Level 3         |
|                  | RF, Conducted Disturbance Immunity                                          | IEC 61000-4-6 Level 2         |
|                  | Power frequency Magnetic Field Immunity                                     | IEC 61000-4-8 Level 1         |
|                  | Voltage dips, Short Interruptions Immunity                                  | IEC 61000-4-11                |

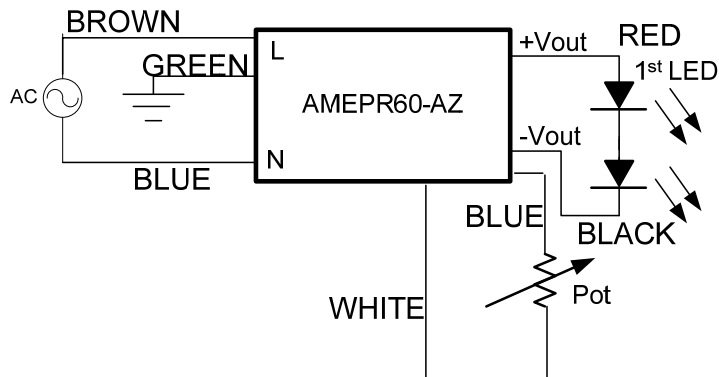
**Dimensions**



**Wire connection:**

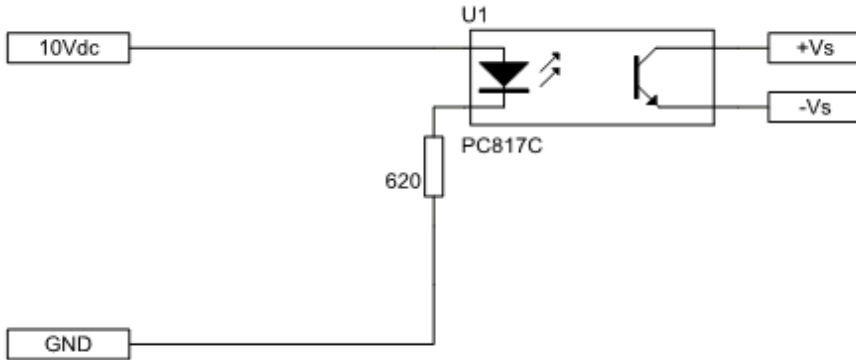
| Wire            | Connection   |
|-----------------|--------------|
| Brown           | AC L         |
| Blue            | AC N         |
| Green           | Ground       |
| Red             | +V output    |
| Black           | -V Output    |
| Blue (Dimming)  | + Vs dimming |
| White (Dimming) | -Vs dimming  |

**AMEPR60-AZ Analog (resistive) Dimming Application Circuit**

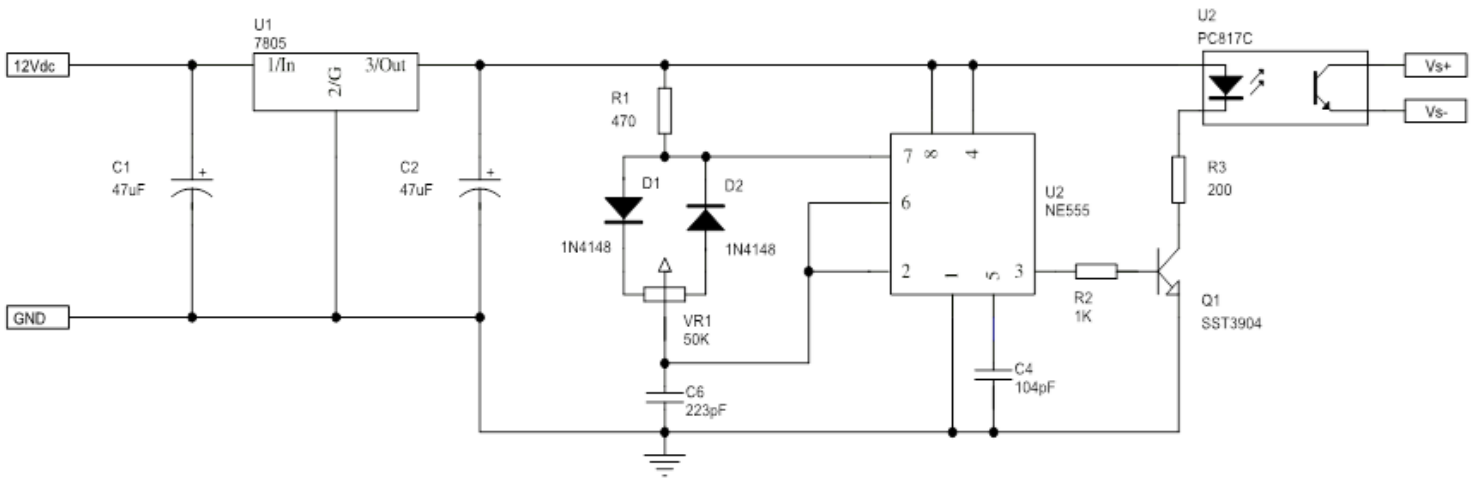


| Model Number    | Maximum Pot Value (kΩ) |
|-----------------|------------------------|
| AMEPR60-50120AZ | 26.00                  |
| AMEPR60-36170AZ | 16.95                  |
| AMEPR60-24250AZ | 26.10                  |
| AMEPR60-12500AZ | 34.10                  |

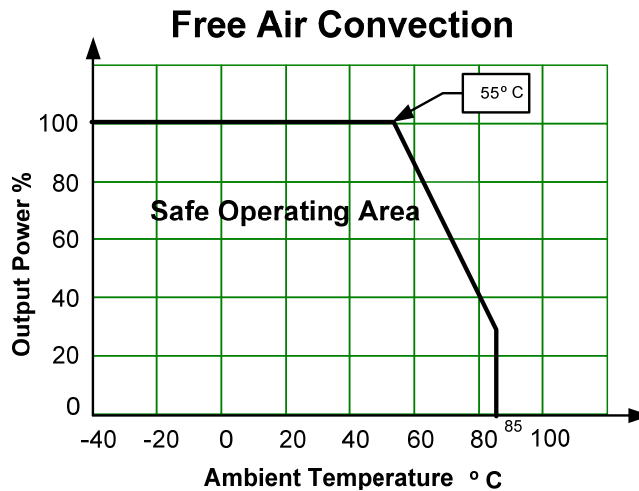
**AMEPR60-AZ Analog (0-10V) Dimming Application Circuit**



**AMEPR60-AZ PWM (1KHz) Dimming Application Circuit**

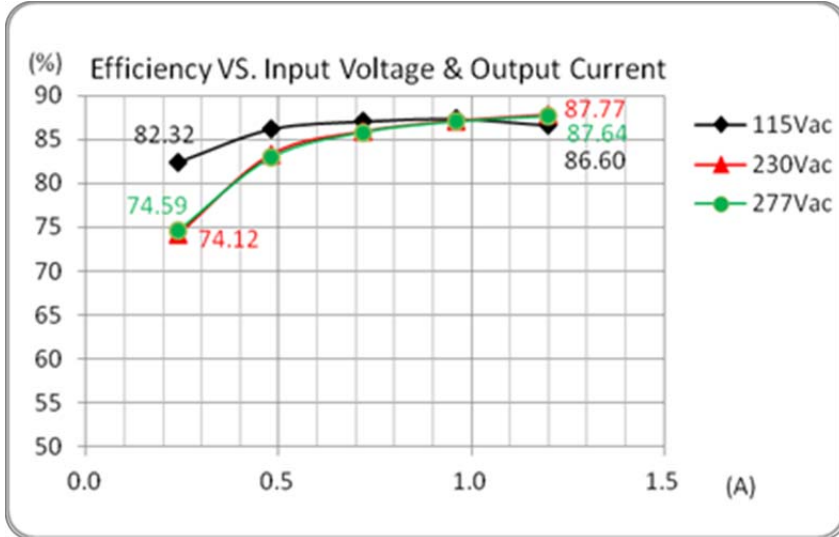


**Temperature Graph**

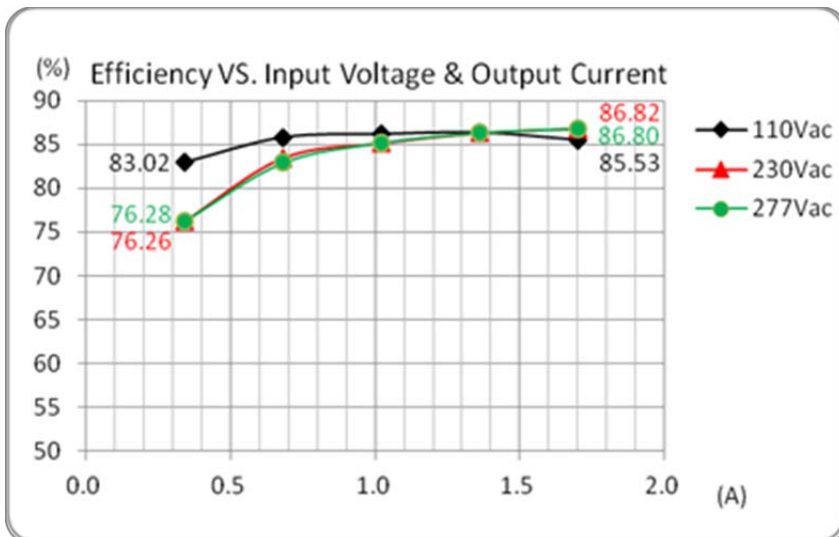


**Efficiency Vs. Input Voltage & Output Current (Constant Current Mode)**

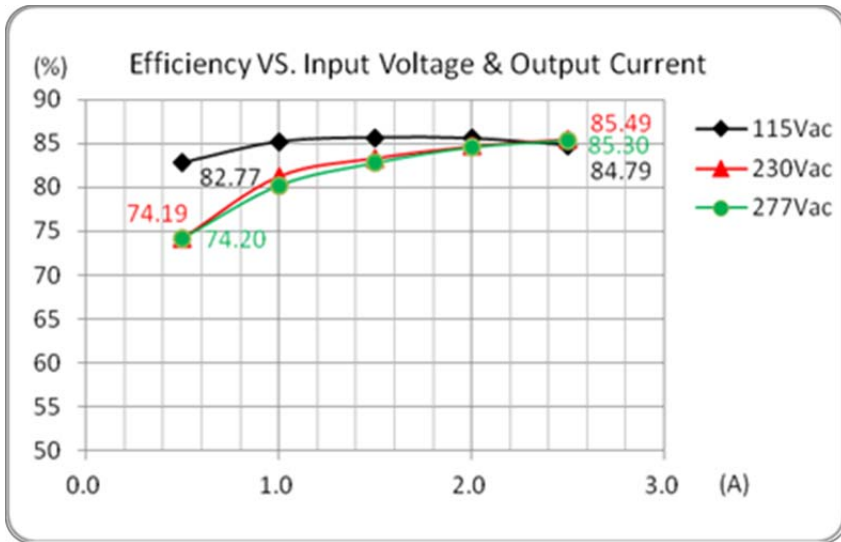
AMEPR60-50120AZ



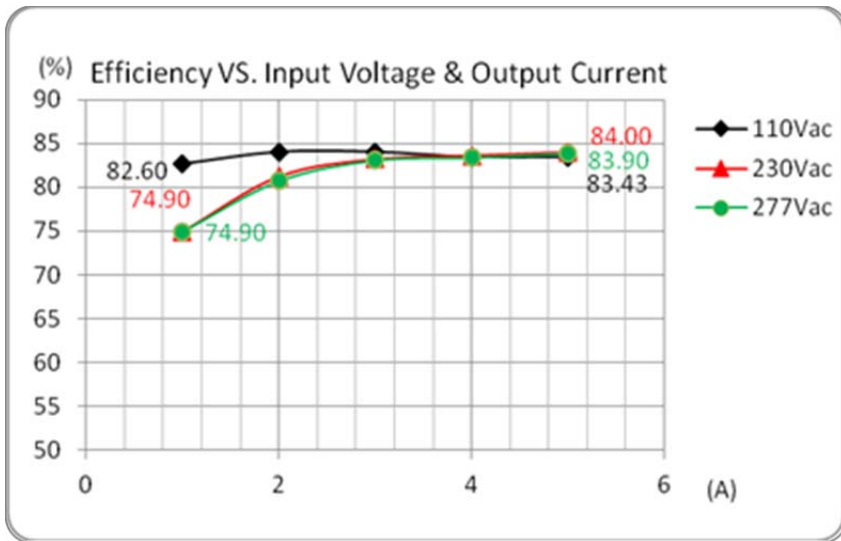
AMEPR60-36170AZ



AMEPR60-24250AZ

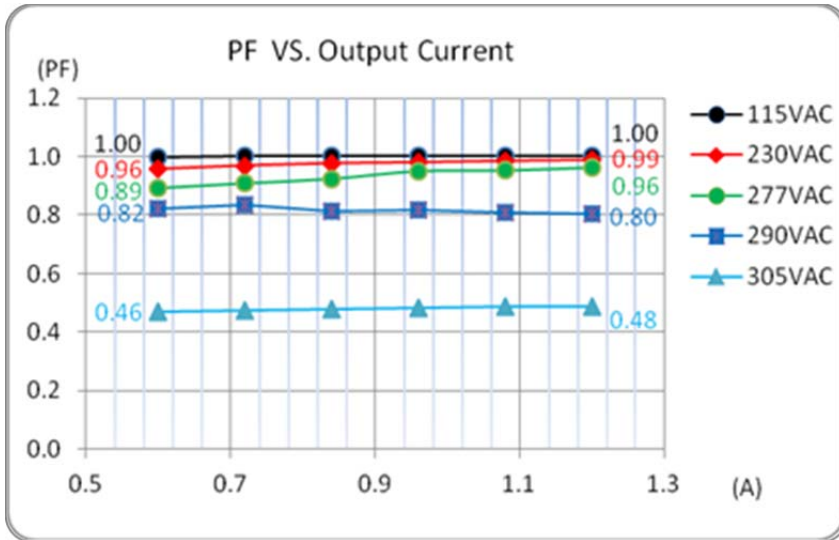


AMEPR60-12500AZ

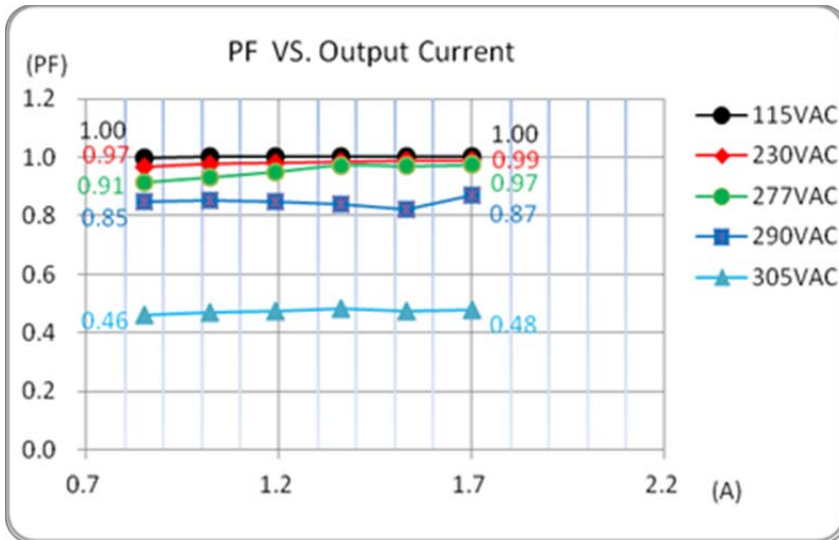


**PFC Value vs. Output Load Current (Constant Current Mode)**

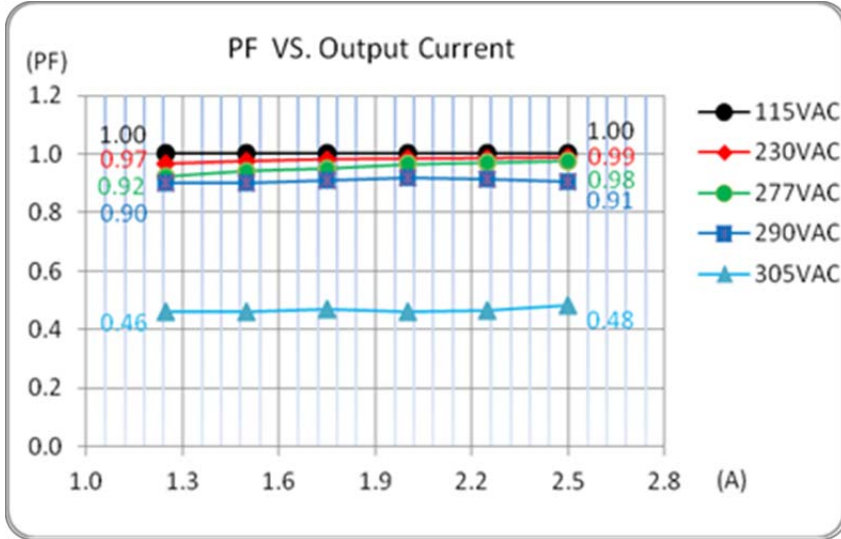
AMEPR60-50120AZ



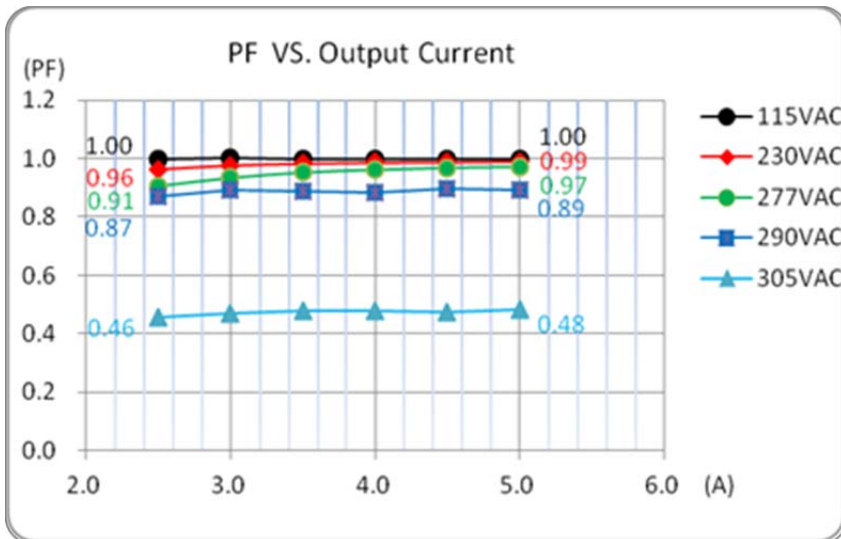
AMEPR60-36170AZ



AMEPR60-24250AZ



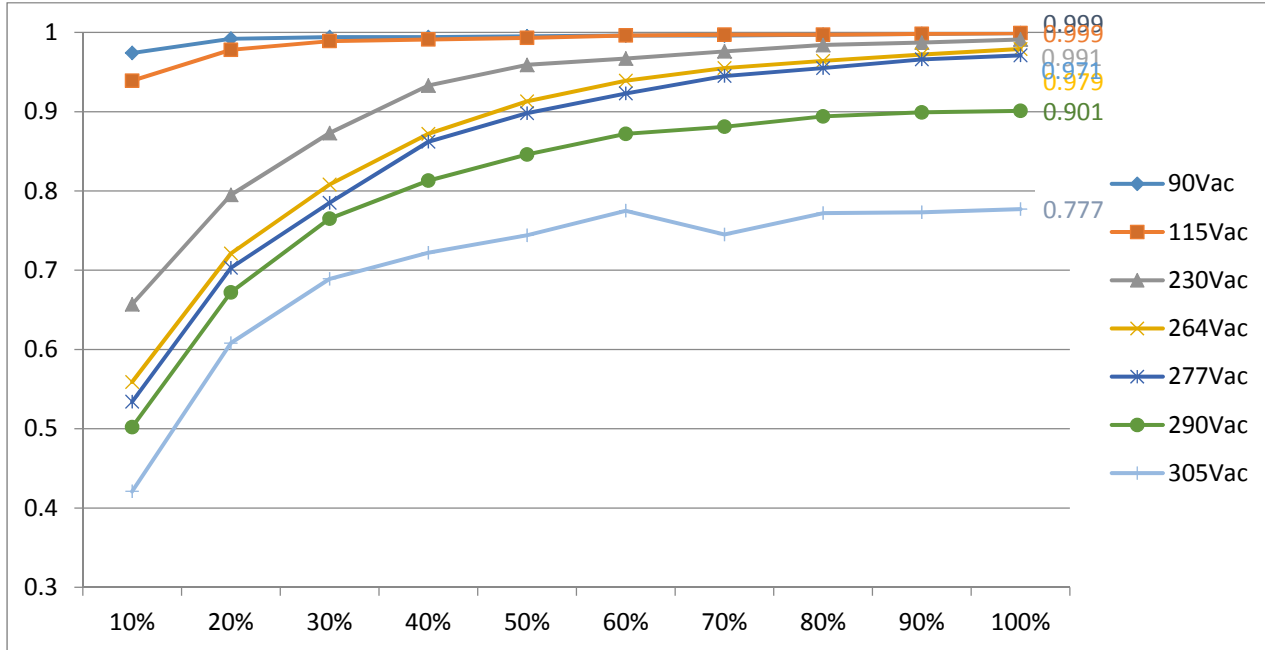
AMEPR60-12500AZ



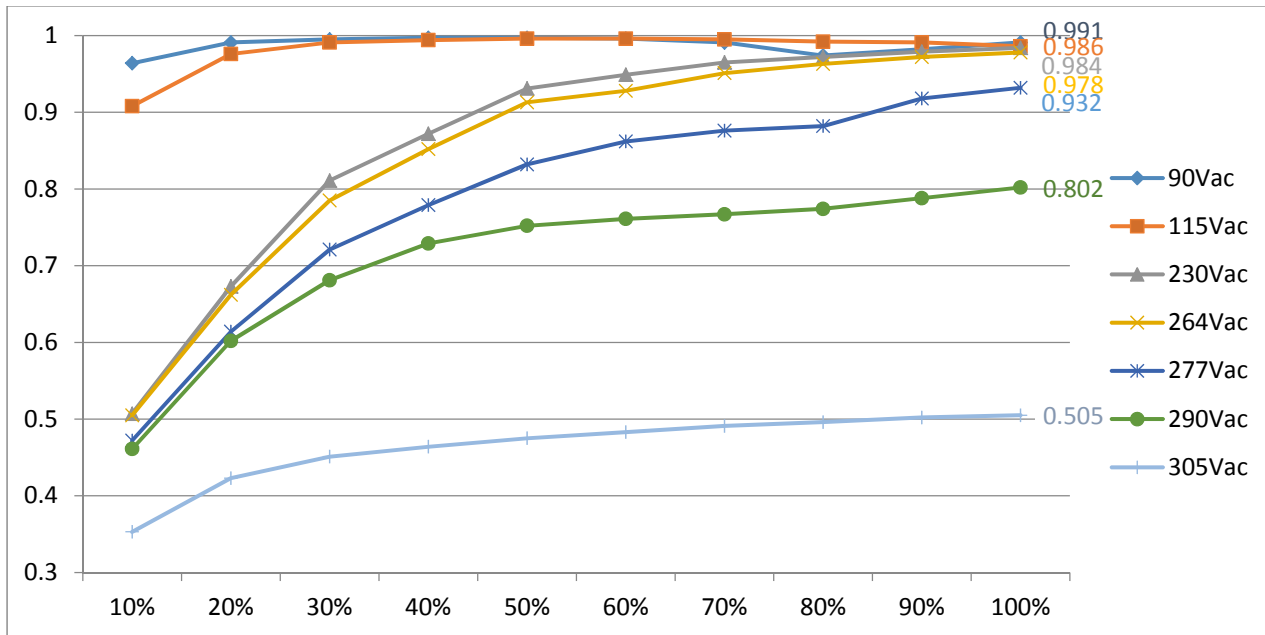


**PFC Value vs. Output Power**

**AMEPR60-50120AZ**

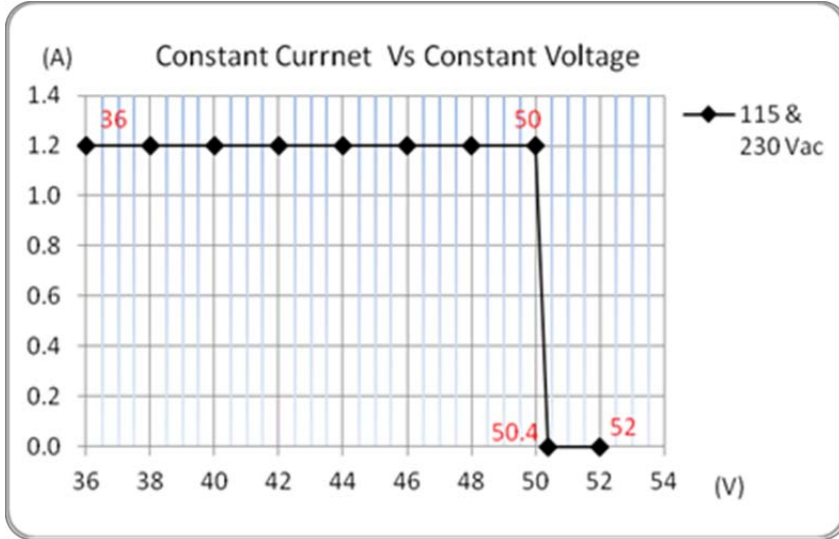


**AMEPR60-24250AZ**

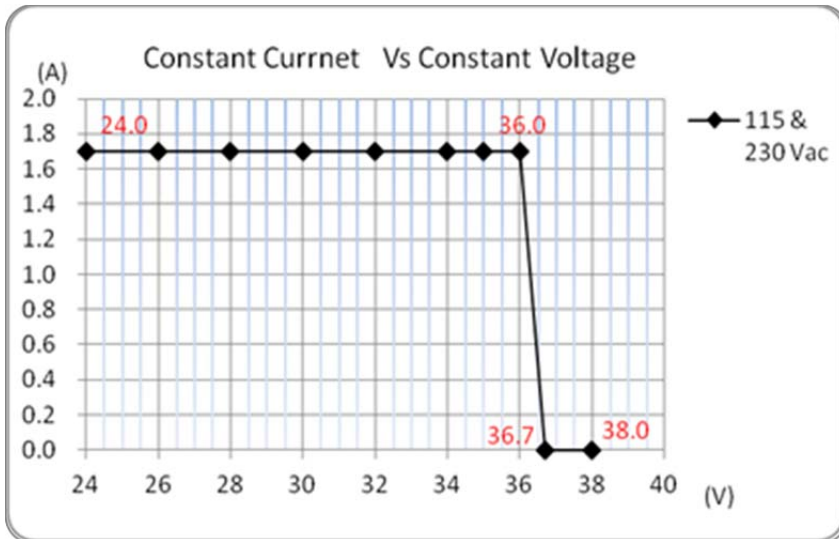


**Constant Current vs. Constant Voltage Mode**

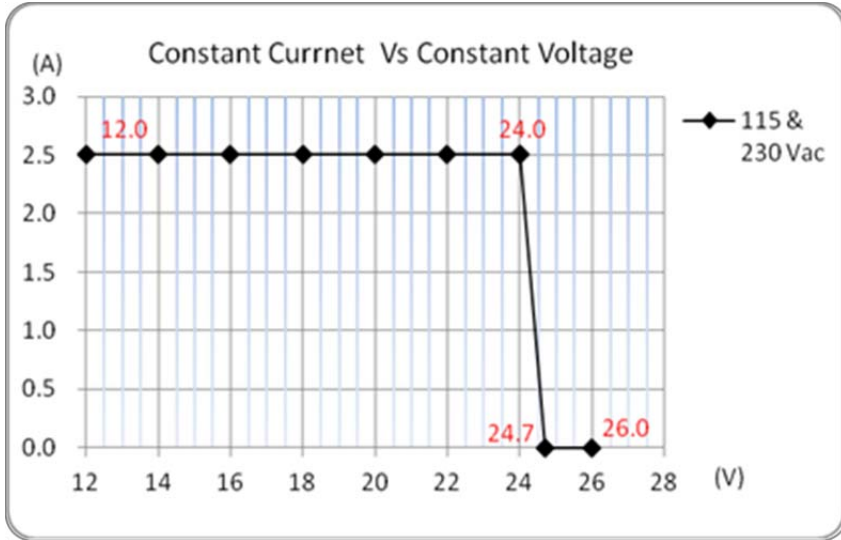
AMEPR60-50120AZ



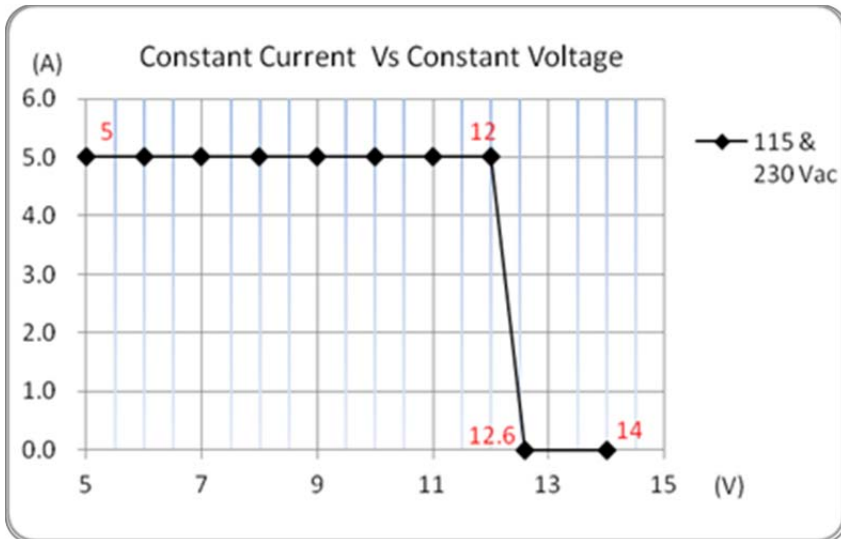
AMEPR60-36170AZ



AMEPR60-24250AZ

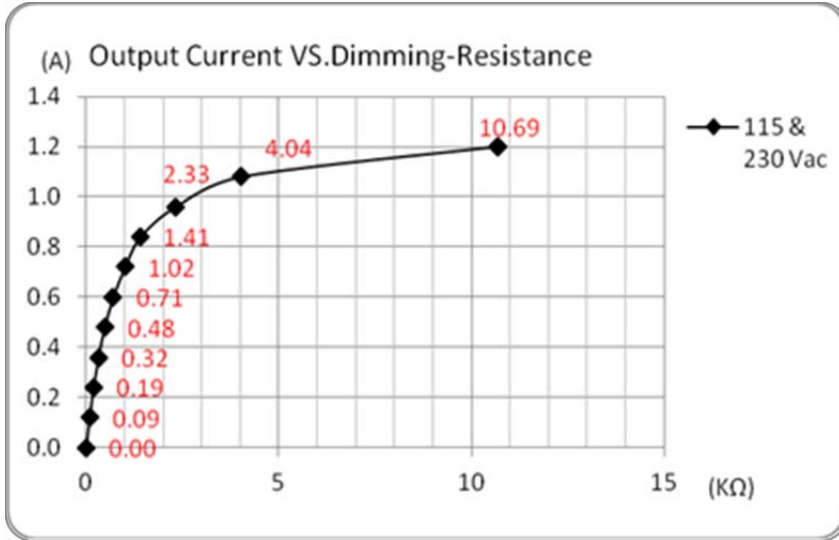


AMEPR60-12500AZ

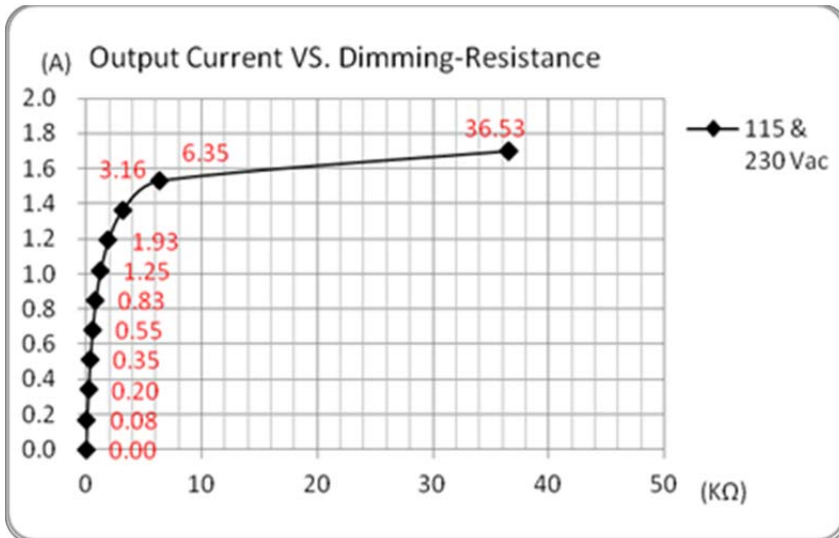


**Dimming Control (Output Current vs. Radj)**

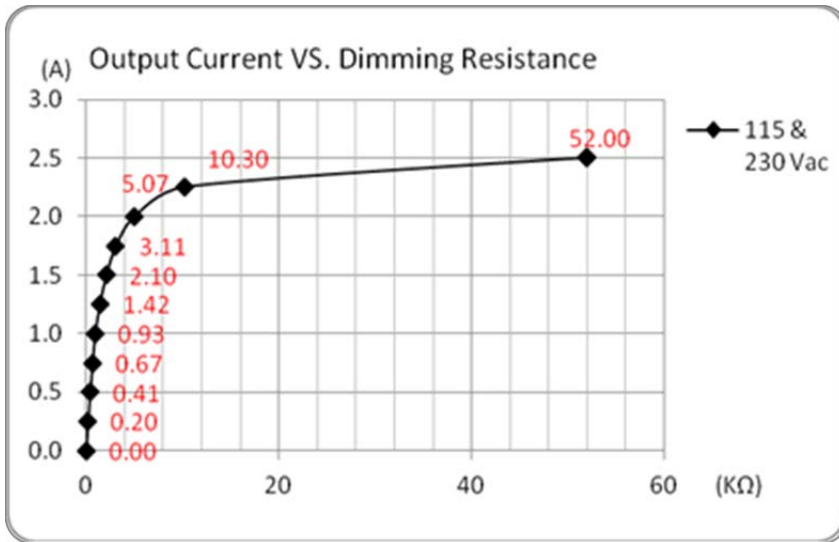
AMEPR60-50120AZ



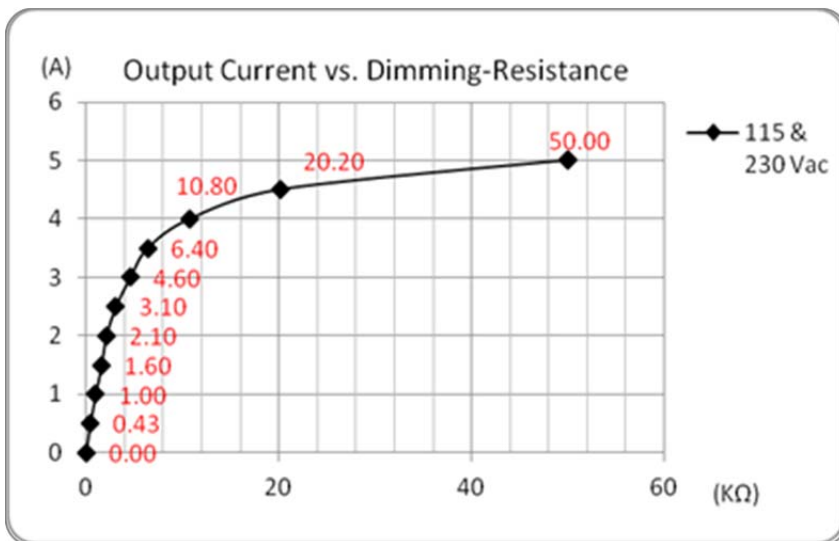
AMEPR60-36170AZ



AMEPR60-24250AZ



AMEPR60-12500AZ



**NOTE:** 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to [www.aimtec.com](http://www.aimtec.com) for the most current product specifications. 2. Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. 3. Mechanical drawings and specifications are for reference only. 4. All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. 5. Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. 6. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at [www.aimtec.com](http://www.aimtec.com).